



Renewable Distributed Generation

IEPR and Renewables Joint Committee Workshop

Tim Tutt
Renewable Energy Program

June 8, 2004

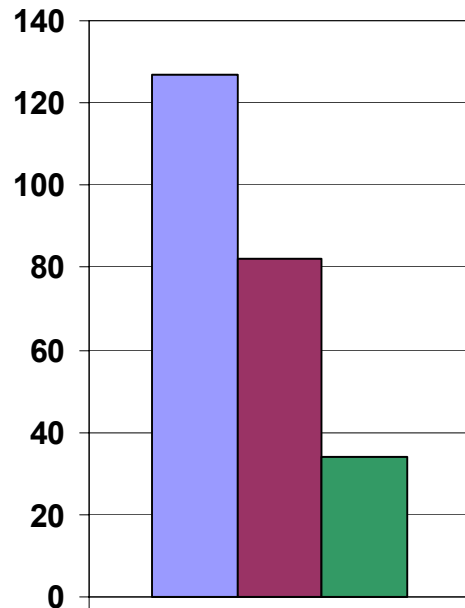


AGENDA

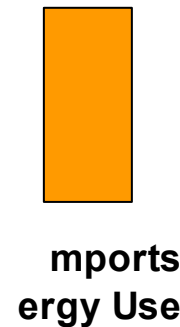
- Morning: Presentations
- Lunch Break
- Afternoon: Renewable DG Roundtable Discussion
 1. Program and policy coordination
 2. Status and strategies for renewable DG markets
 3. Lessons from renewable DG programs in Germany & Japan
 4. Net metering, tax credits, tax exemptions: caps/expiration
 5. Solar systems on new homes
- Adjourn



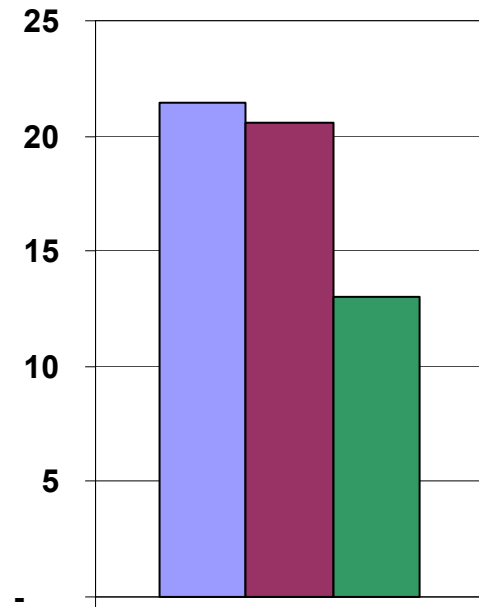
PV Energy Market Fundamentals



Population
(Millions)



Imports
Energy Use



Electricity Price
(US c/kWh)



Japan



Germany



California

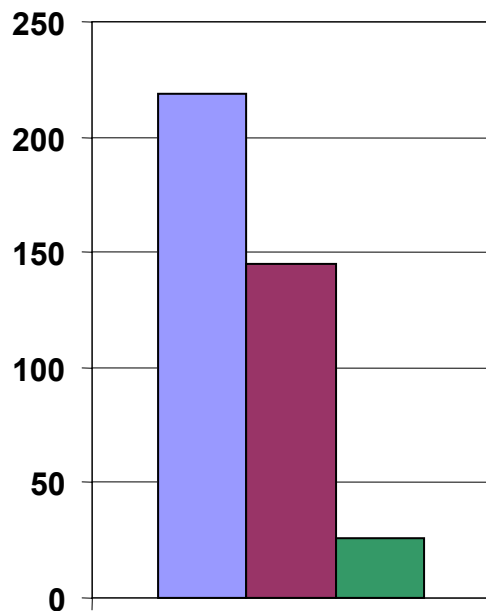


USA

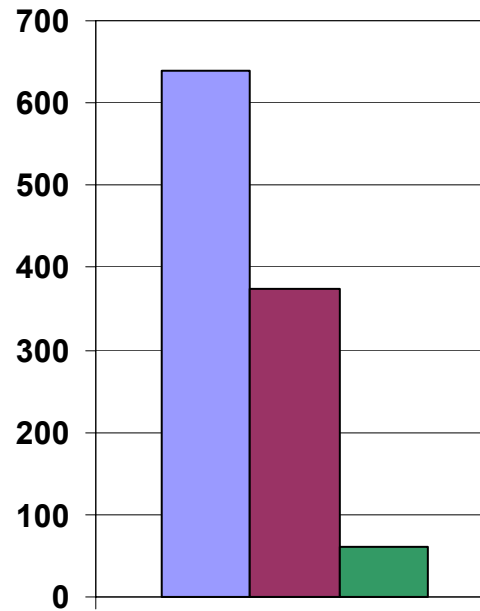


PV Policy Successes: Top 3 Markets

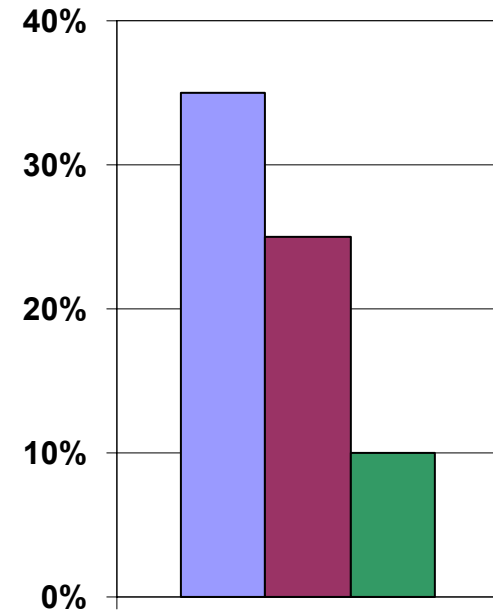
- 574 MW solar PV installed globally in 2003: 34% growth v. 2002
- Japan, Germany and US are top 3 markets = 75% of total



2003 PV Installations
MWp



Cumulative MWp PV
Installed YE2003



1999 - 2003 PV
System Price Drop

Japan

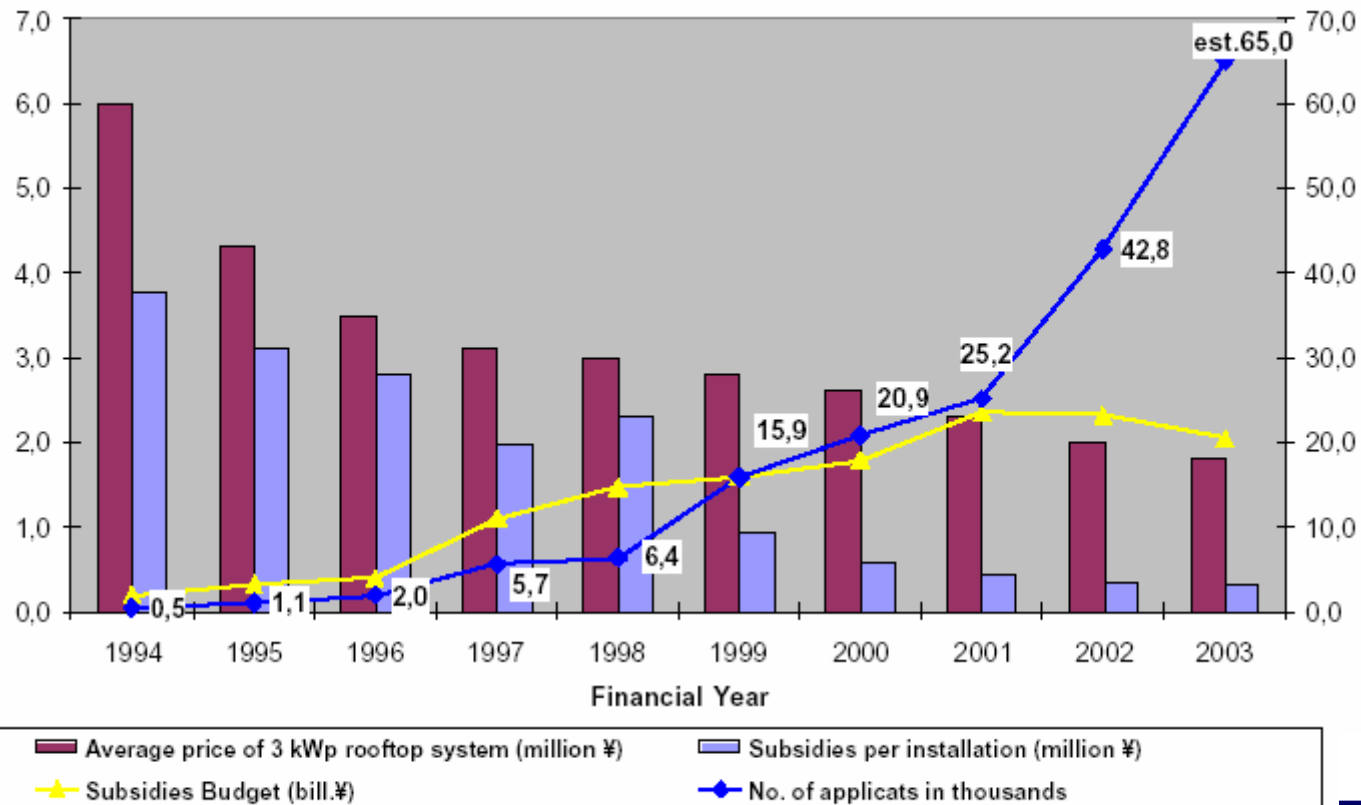
Germany

California



Japanese PV Experience From 1994

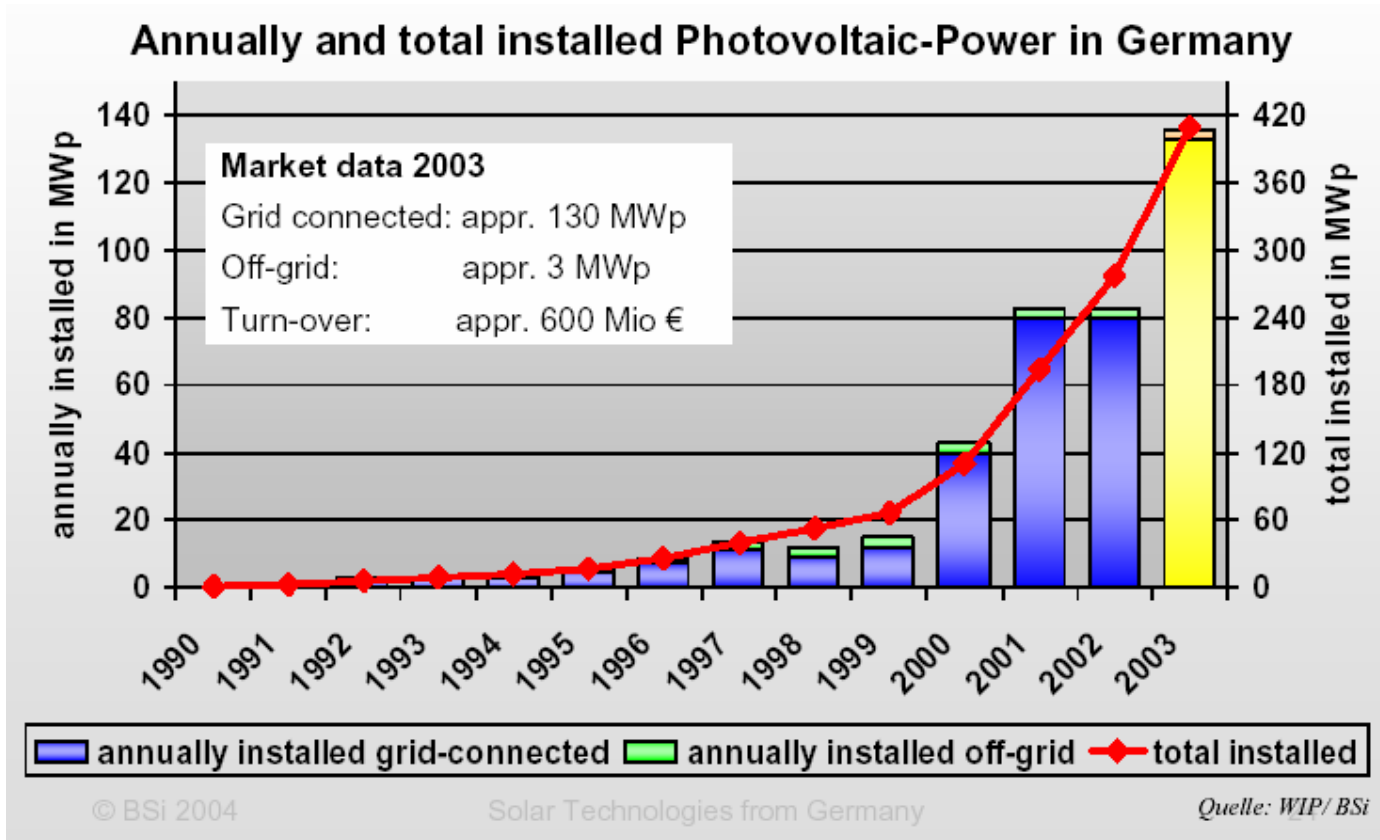
- Japan spent over \$1 billion in subsidies over 10 years
 - Budget funds rolled over in '01 and '02
 - Subsidies ramped down and phased out YE 2004





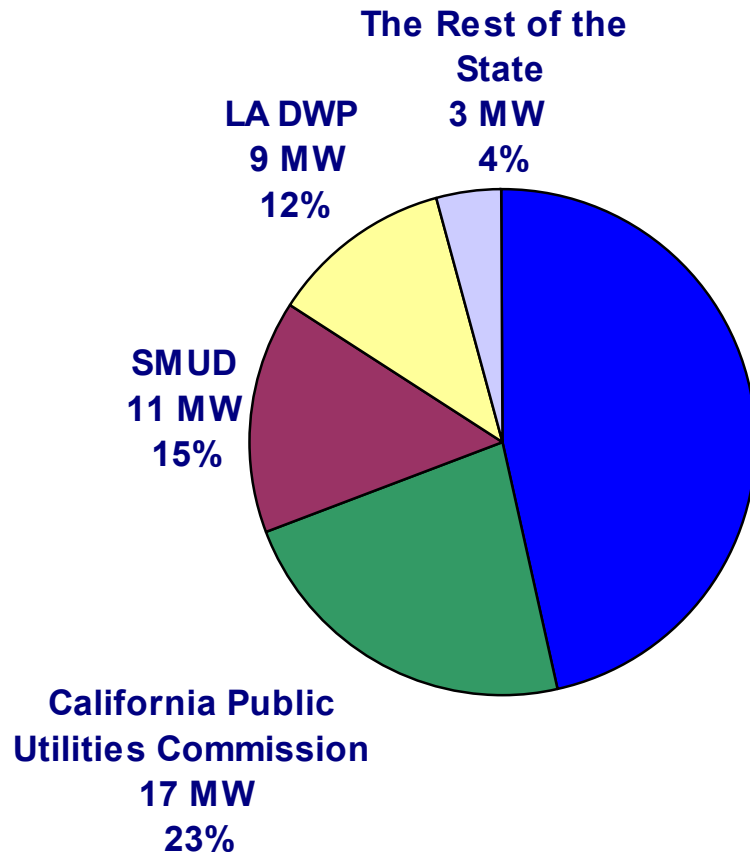
German PV Experience From 1990

- Germany, like CA, had major market changes in 2000
 - ❖ Like CA to the rest of the US, Germany is > 75% of EU PV market





PV Incentive Programs in California

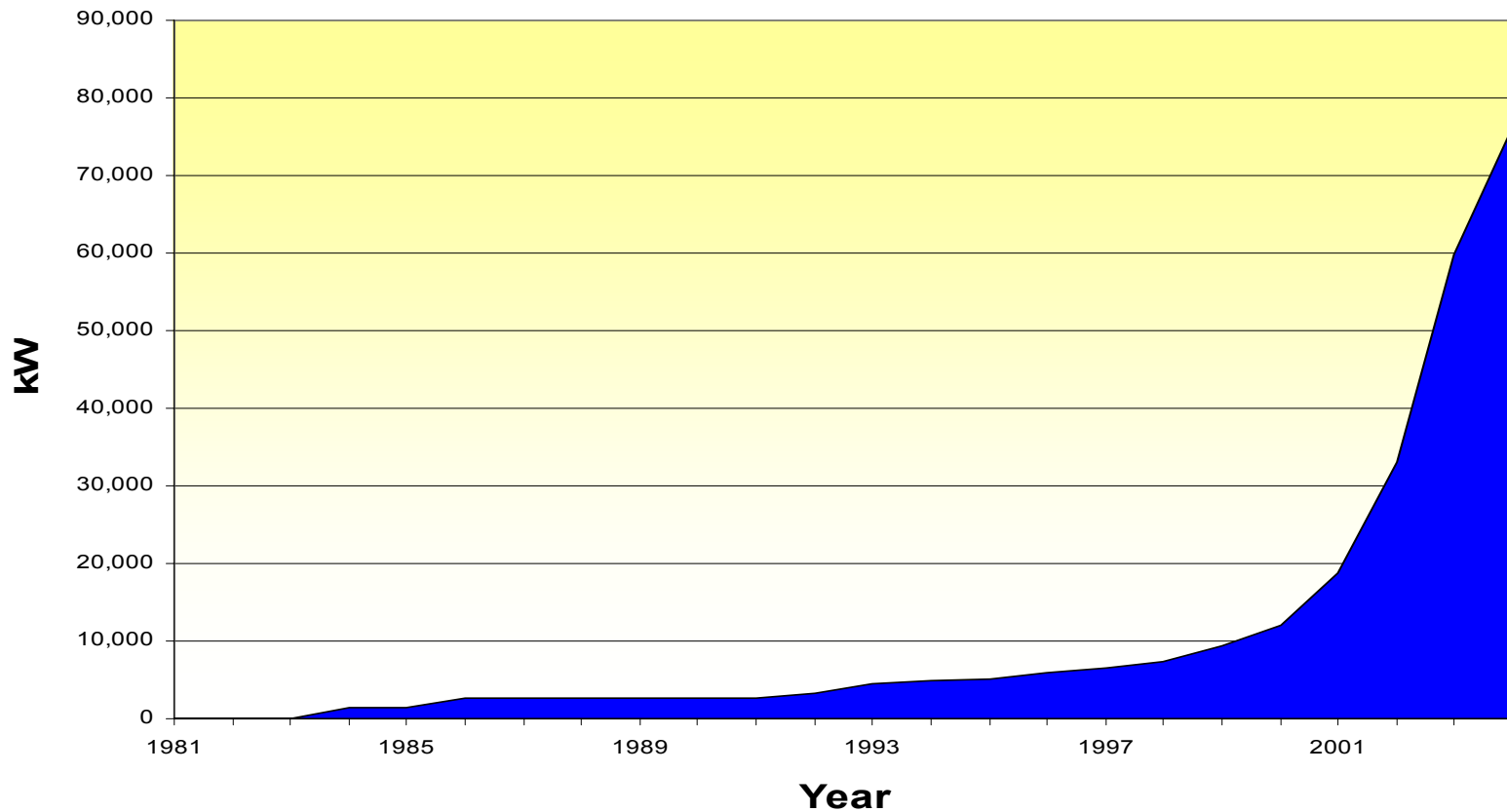


■ Other Policies

- Net Metering
- CRS Exemptions
- Property Tax Exemption
- Research and Development
- Income Tax Credit



Growth in Grid-Connected Solar in CA





Emerging Renewables Program

Goal: Accelerate cost reduction and market acceptance through high volume production.

- Provides rebates for purchasing and installing distributed generation renewable energy systems.
- Eligible technologies: solar photovoltaic, small wind, fuel cells using renewable fuels, solar thermal electric.
- By early 2004, paid over \$148 million for 9,400 systems for 37.5 MW of distributed generation capacity.
- \$70 million encumbered for 4,600 systems in development.
- \$86 million remaining as of June 1, 2004.



California Energy Commission

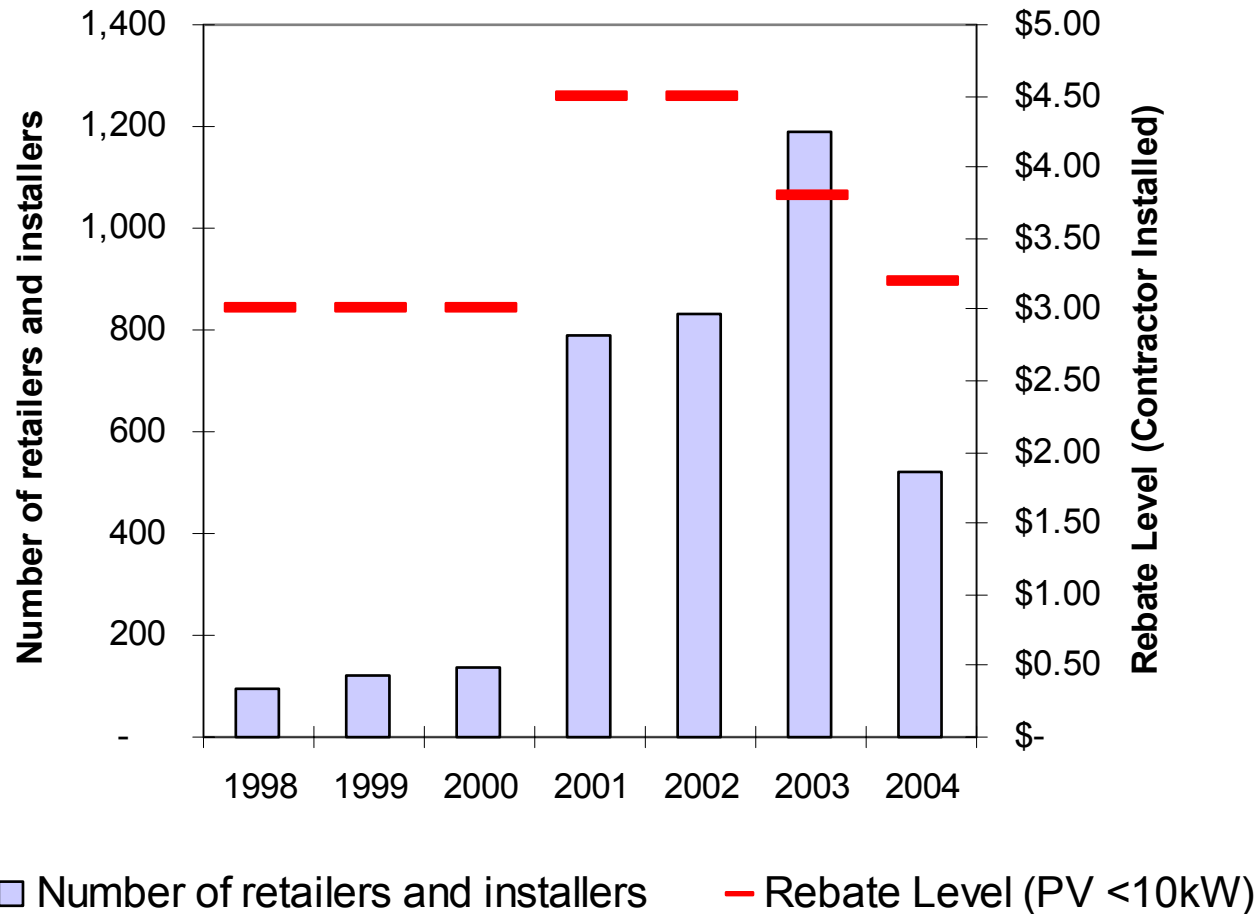
Systems Installed through the Emerging Renewables Program

<i>Year</i>	<i>Number</i>	<i>MW</i>	<i>Payments (\$ Millions)</i>
1998	41	181	\$0.5
1999	197	1,060	\$2.9
2000	235	802	\$2.2
2001	1,292	4,294	\$16.9
2002	2,331	8,501	\$36.4
2003	3,023	12,919	\$52.1
2004*	2,282	9,723	\$37.0
Grand Total	9,401	37,480	\$148.0

* As of June 6, 2004

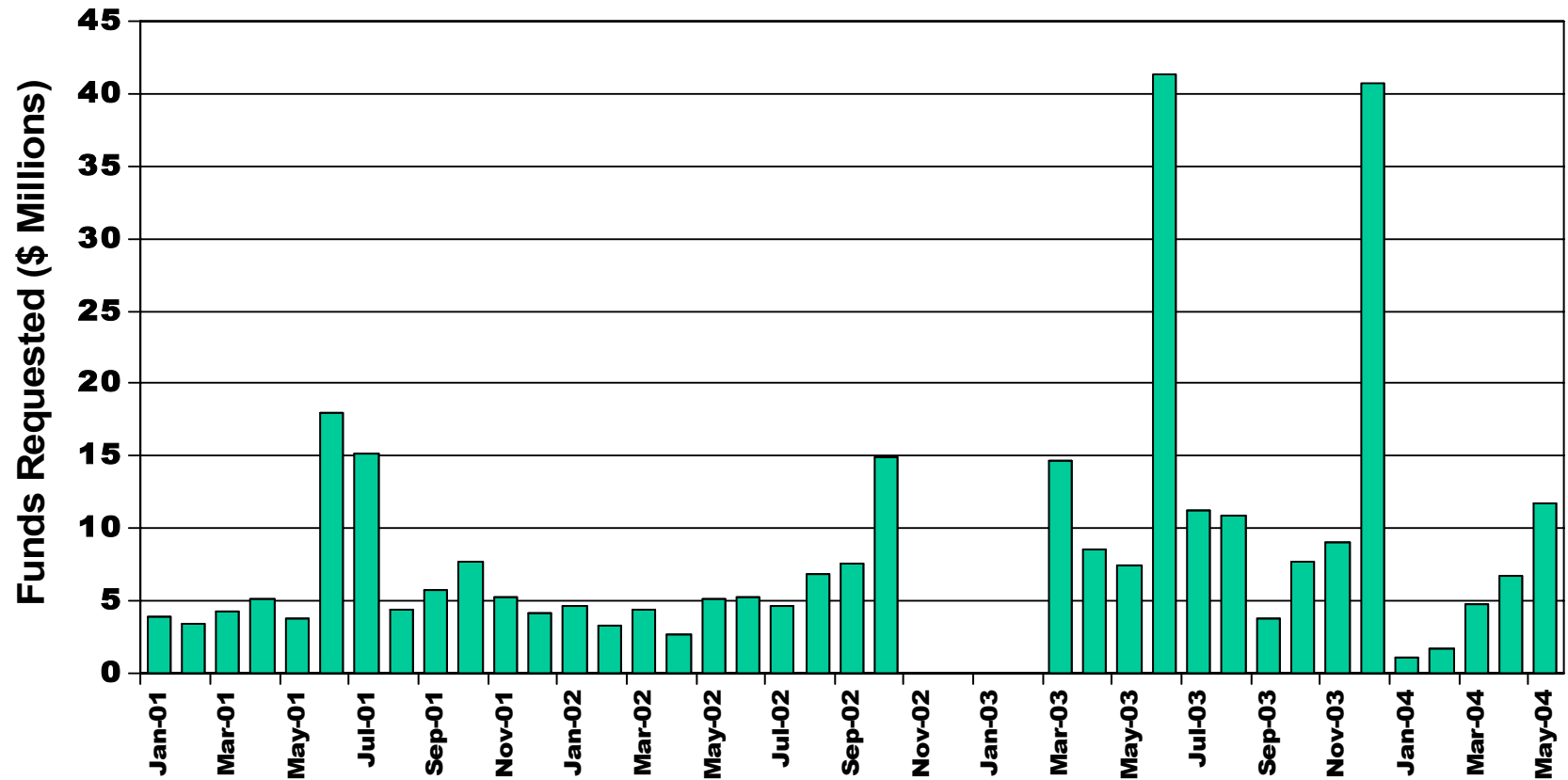


ERP: Growth in Retailers/Installers



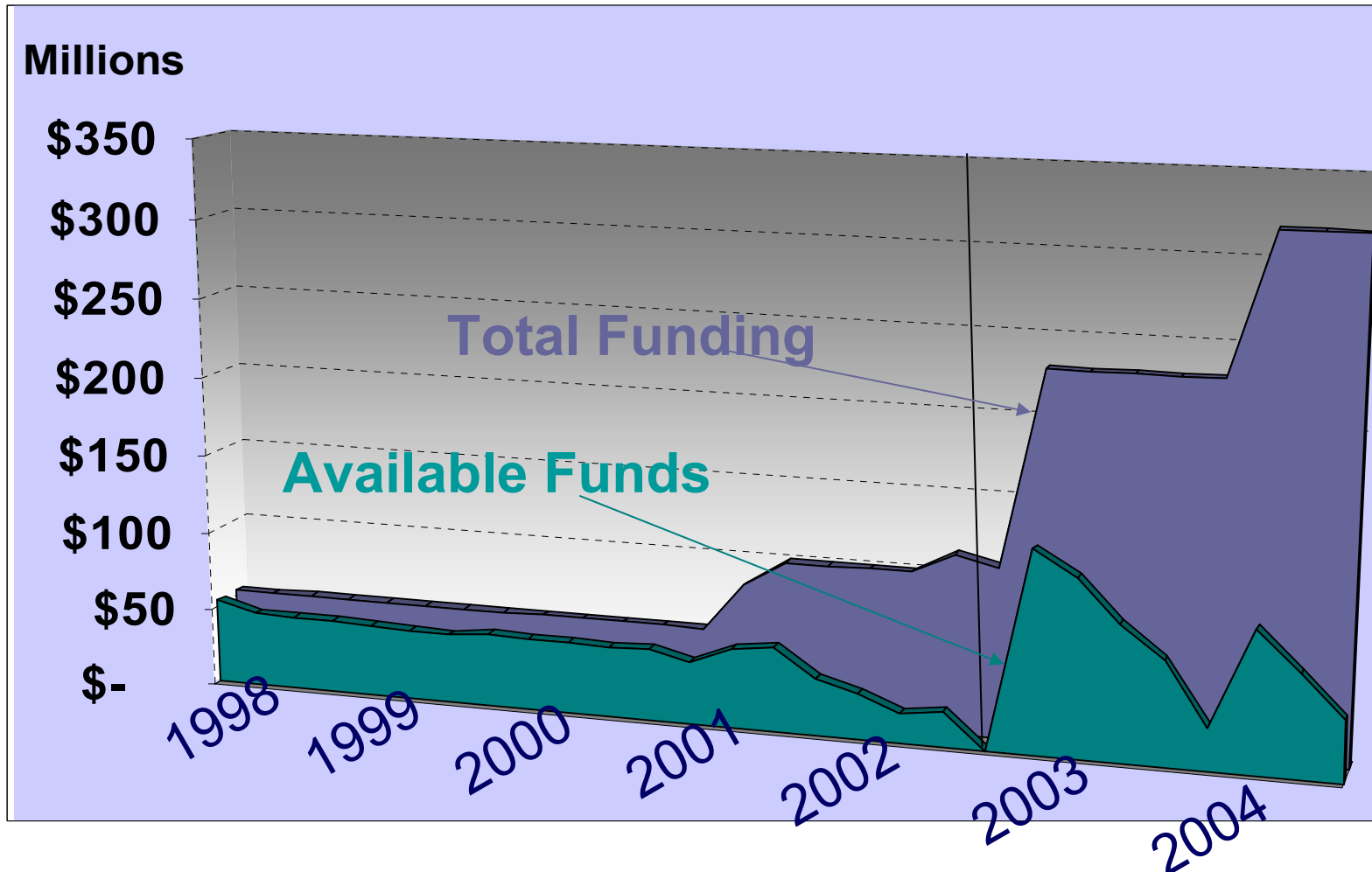


ERP Funding Requested



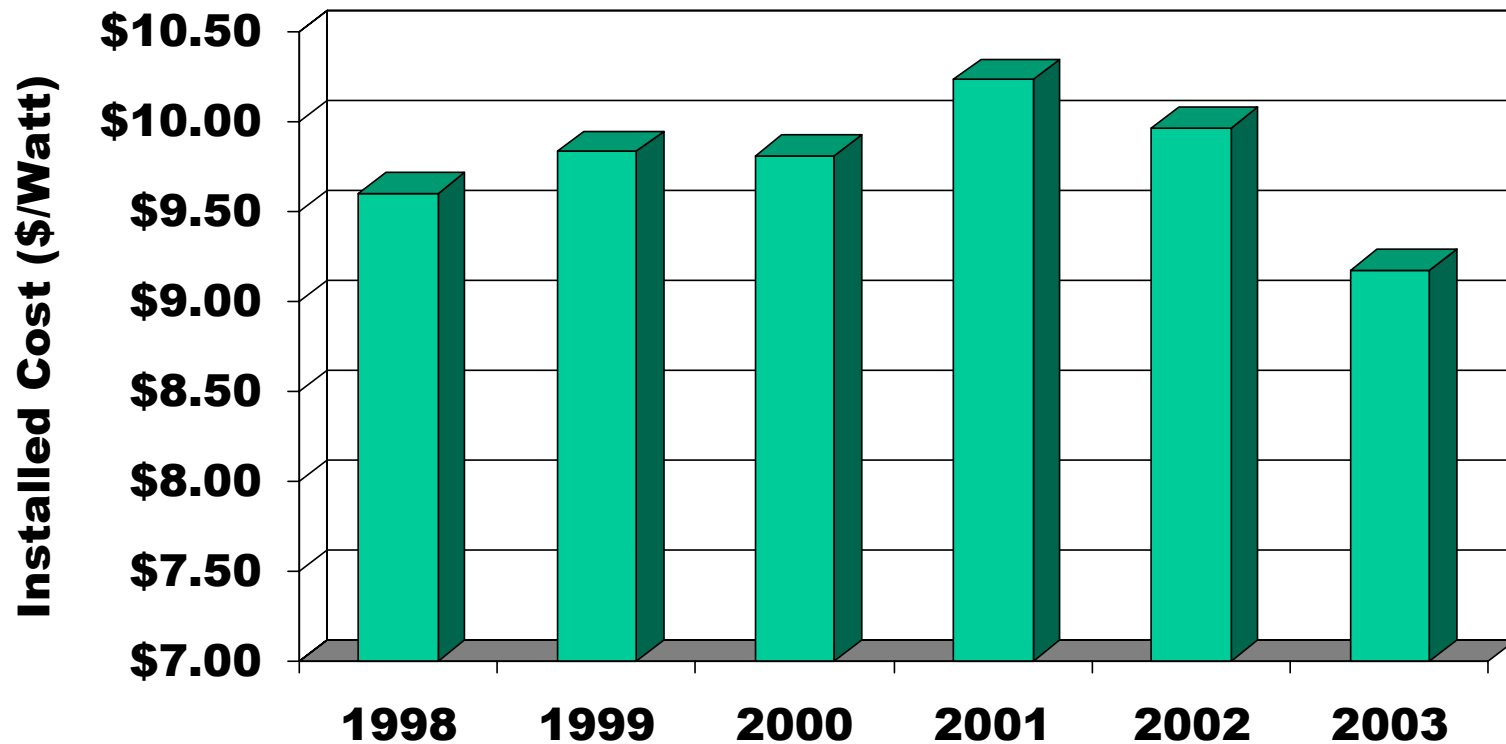


ERP: Total funding v. Payments





Price Trends for Installed PV Systems Smaller than 10 kW

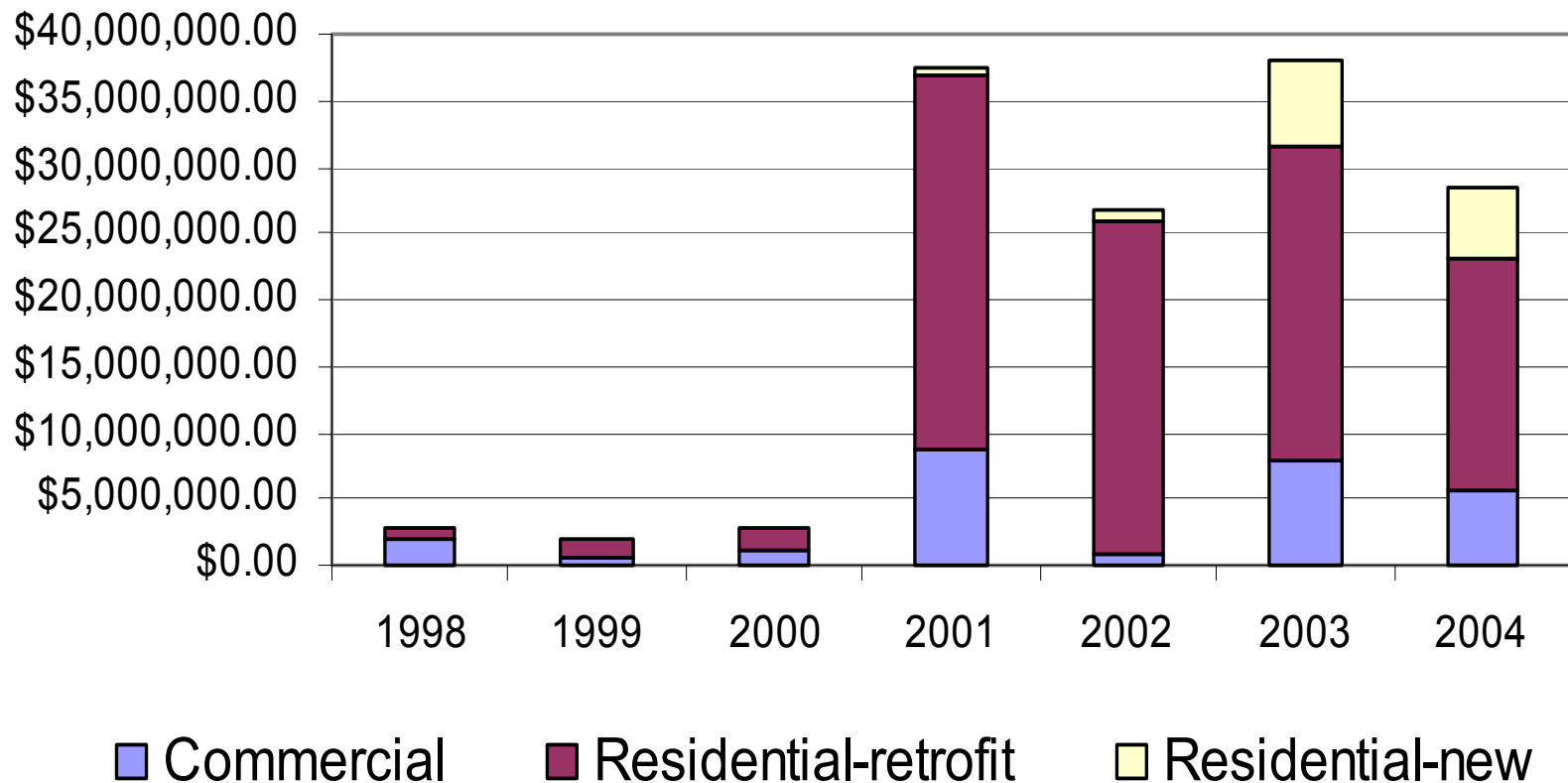


Note: Excludes projects greater than \$20.00/Watt and less than \$5.00/Watt, and is based on application receipt date.



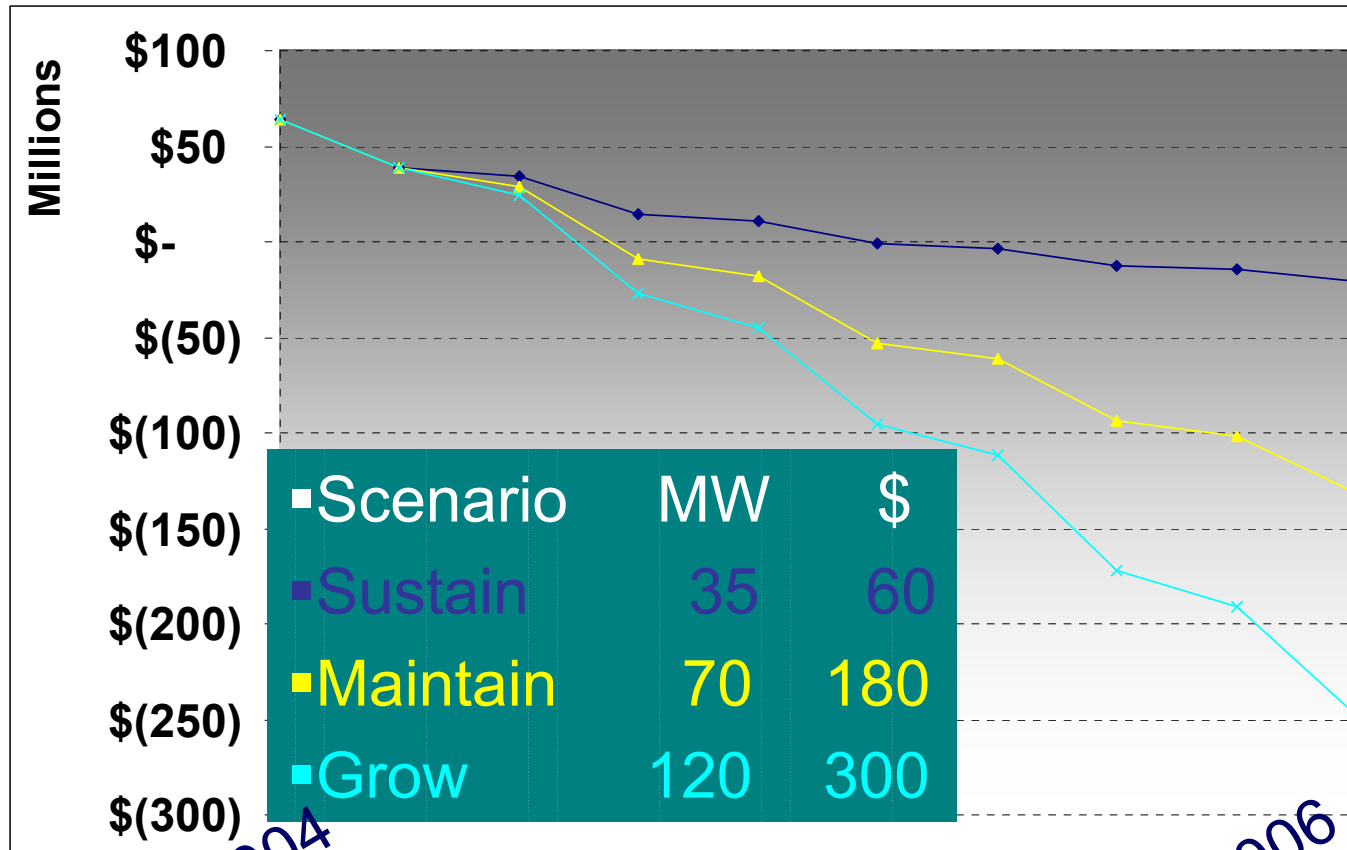
California Energy Commission

Amount Reserved for Commercial, Residential-Retrofit, and Residential-New Construction





ERP: What Happens In 2005-2006...



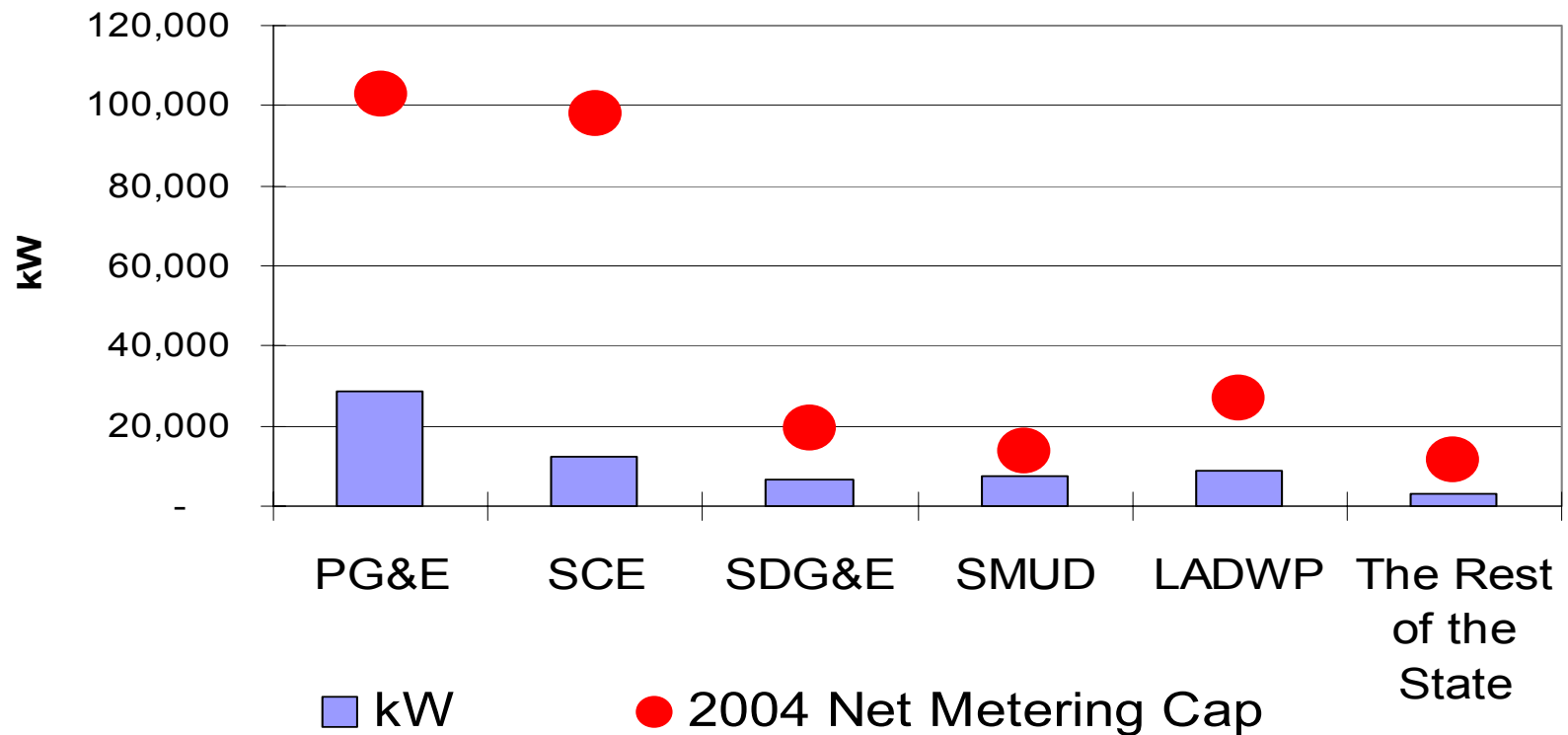
June 2004

Dec 2006



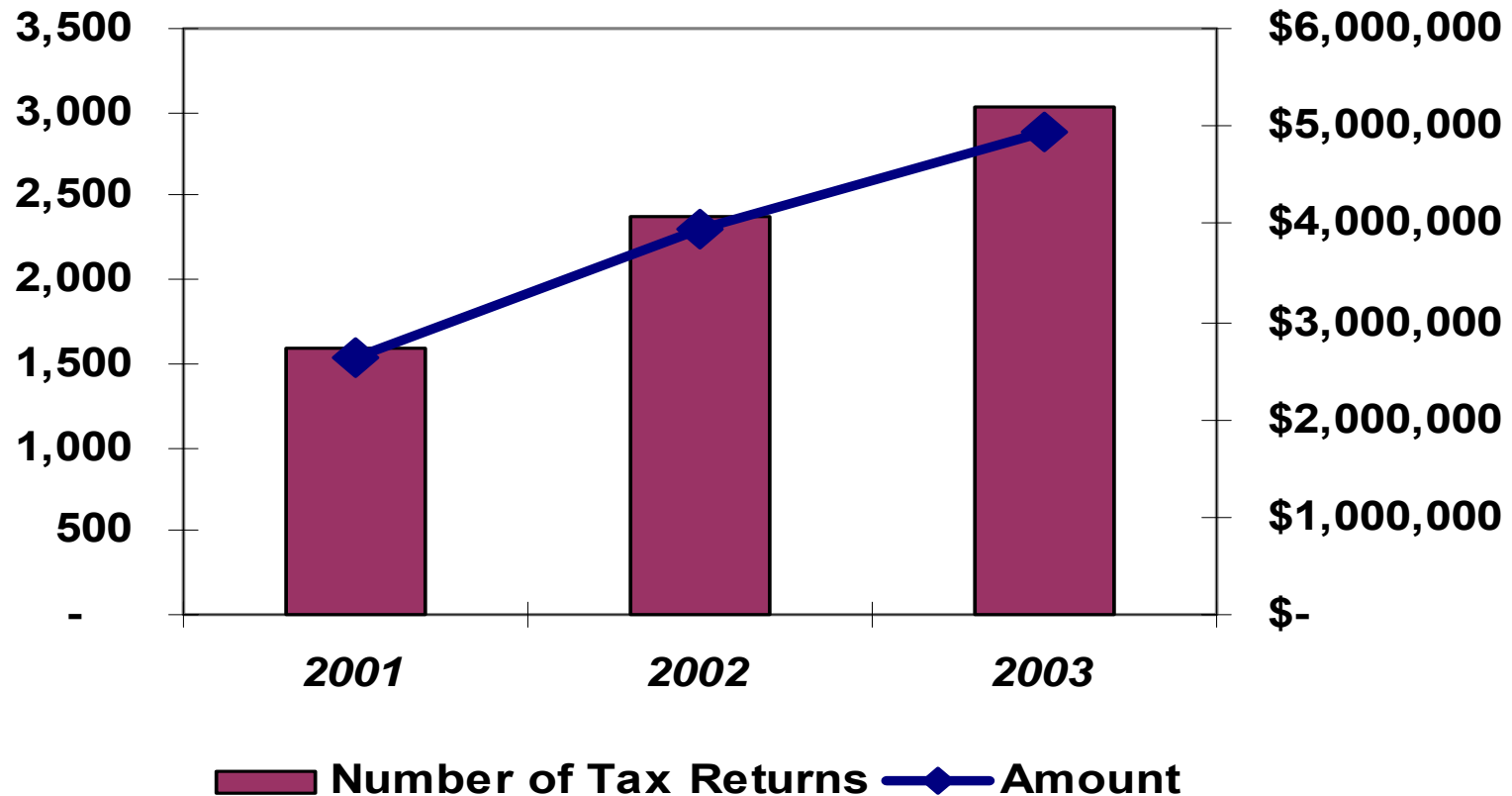
California Energy Commission

Estimated Net Metering Caps and Grid-Connected PV Capacity Installed in California by Service Territory





Personal Tax Returns Claiming the State Solar Tax Credit





Contact Information

Tim Tutt

Technical Director, Renewable Energy Program

(916) 654-4590

ttutt@energy.state.ca.us

www.energy.ca.gov/renewables